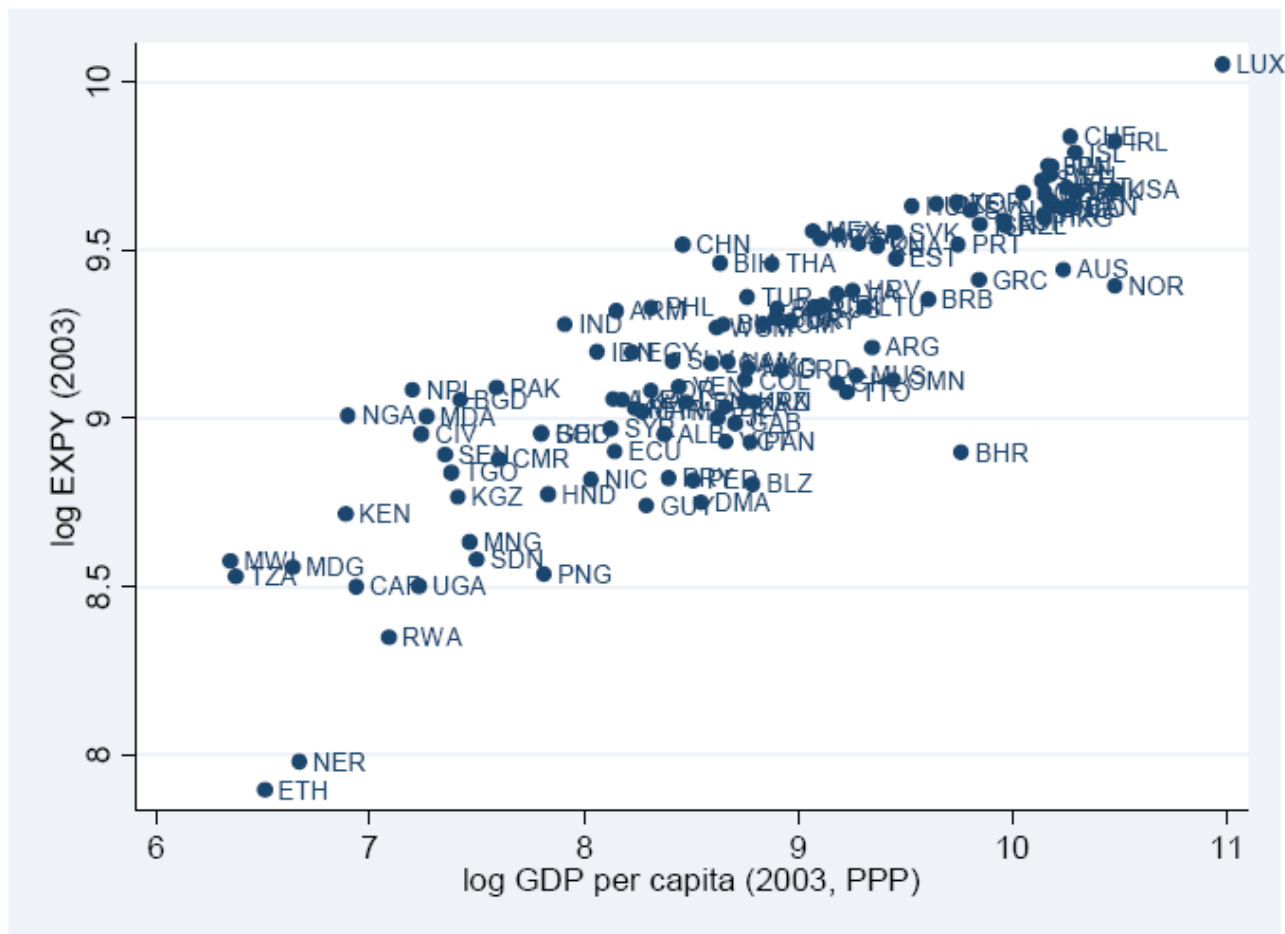

Structural Transformation & Special Economic Zones

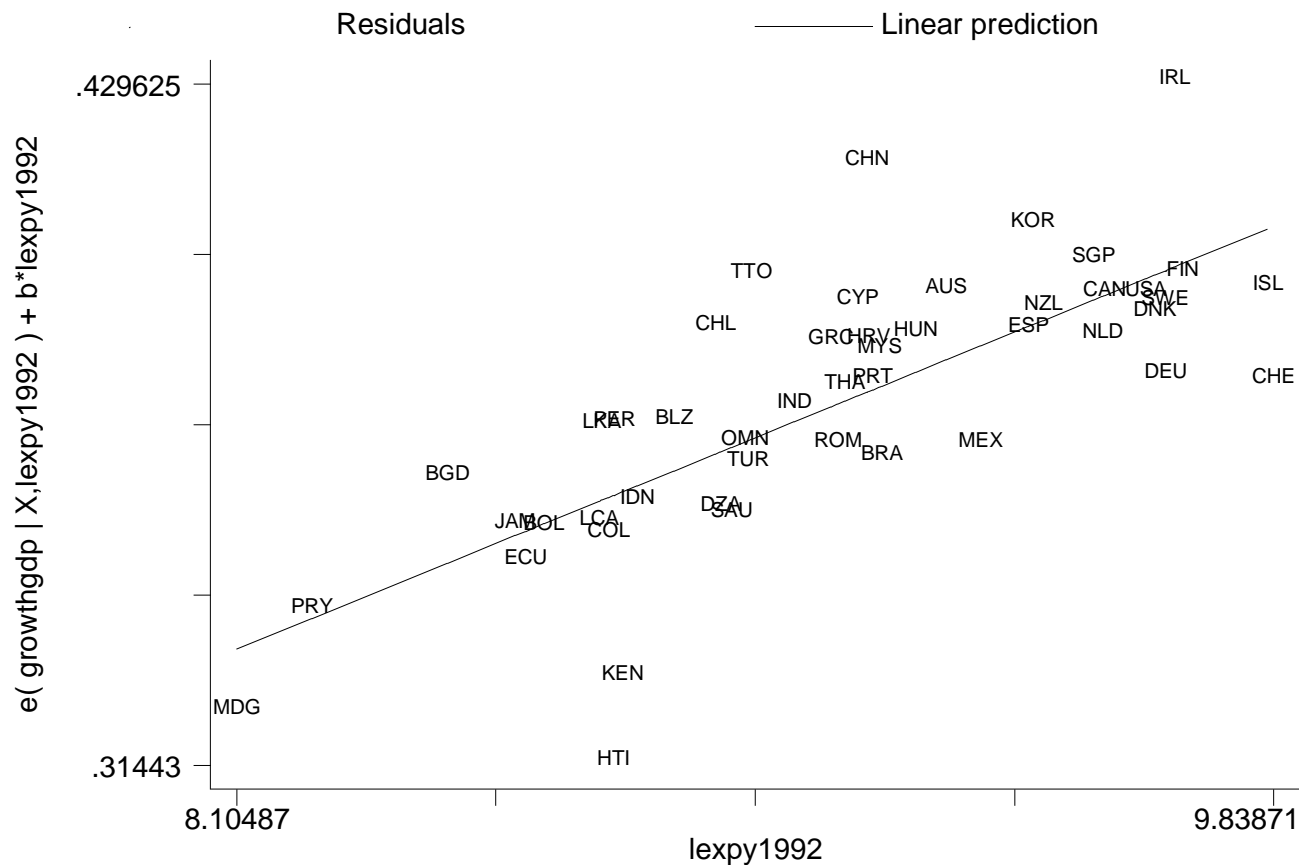
Ricardo Hausmann & Bailey Klinger
Center for International Development
Harvard University

Rich countries produce rich-country goods...

Figure 4: Relationship between per-capita GDP and *EXPY*, 2003



...and countries 'become' what they export



Structural Transformation

- Production requires a large set of inputs (or capabilities)
 - Some provided by the private sector
 - E.g. accountants, machines, buildings
 - Others are provided by, or at least controlled by, the state
 - E.g. electricity, regulations, market access
 - Are usually non-tradable
- The set is large & sector-specific
 - E.g. call centers require a particular set of skills, regulations, and infrastructure that are different from those required to produce car parts

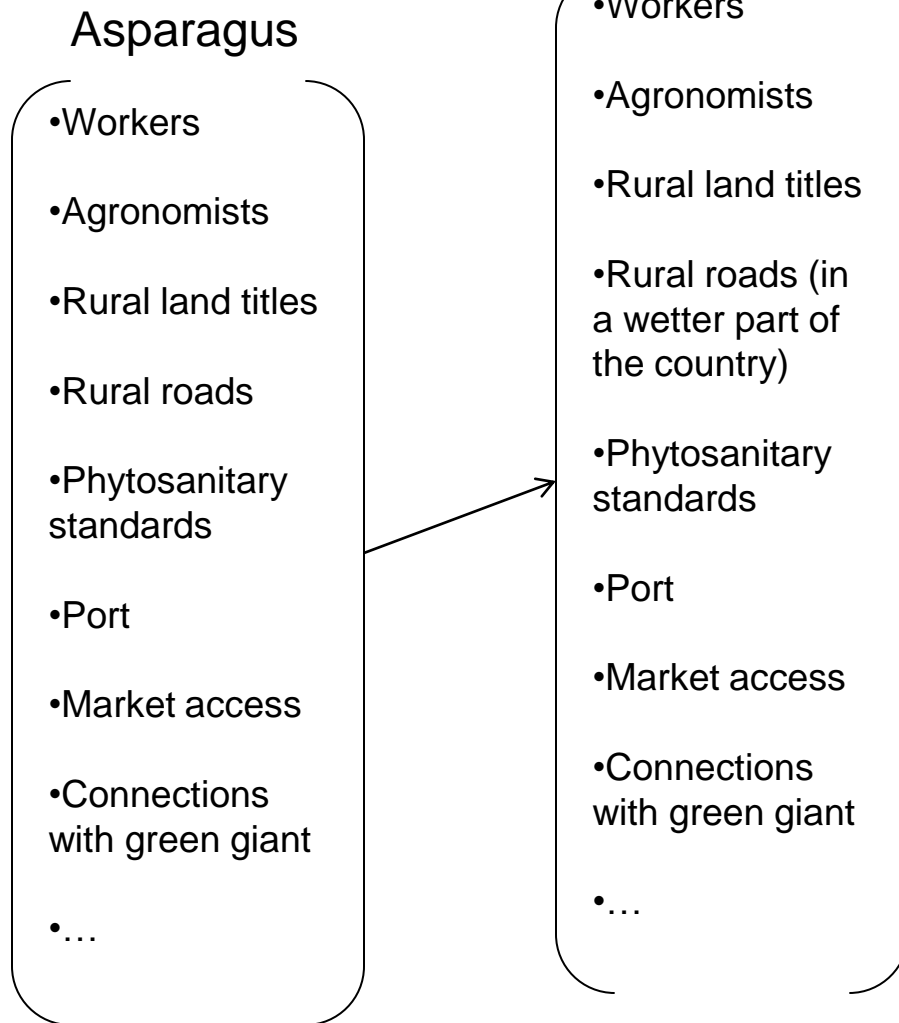
Asparagus

- Workers
- Agronomists
- Rural land titles
- Rural roads
- Phytosanitary standards
- Port
- Market access
- Connections with green giant
- ...

Structural transformation

- This creates a challenge for making ‘new’ products:
 - Will lack the requisite sector-specific capabilities
 - Accumulating those capabilities is unattractive because the industry that would demand them does not exist – coordination problem

 - So how do new activities emerge? Our work shows that the world has addressed this problem by moving to ‘nearby goods’
-



- Degree of specificity is relative
 - This suggests a notion of ***distance***
 - Some pairs of products will use similar factors, in which case the cost of adapting the existing factors to the new good is small (e.g. asparagus and artichokes).
 - Others will have a higher cost (e.g. asparagus and flat screen TVs)

Flat Screen TVs

- Others will have a higher cost (e.g. asparagus and flat screen TVs)

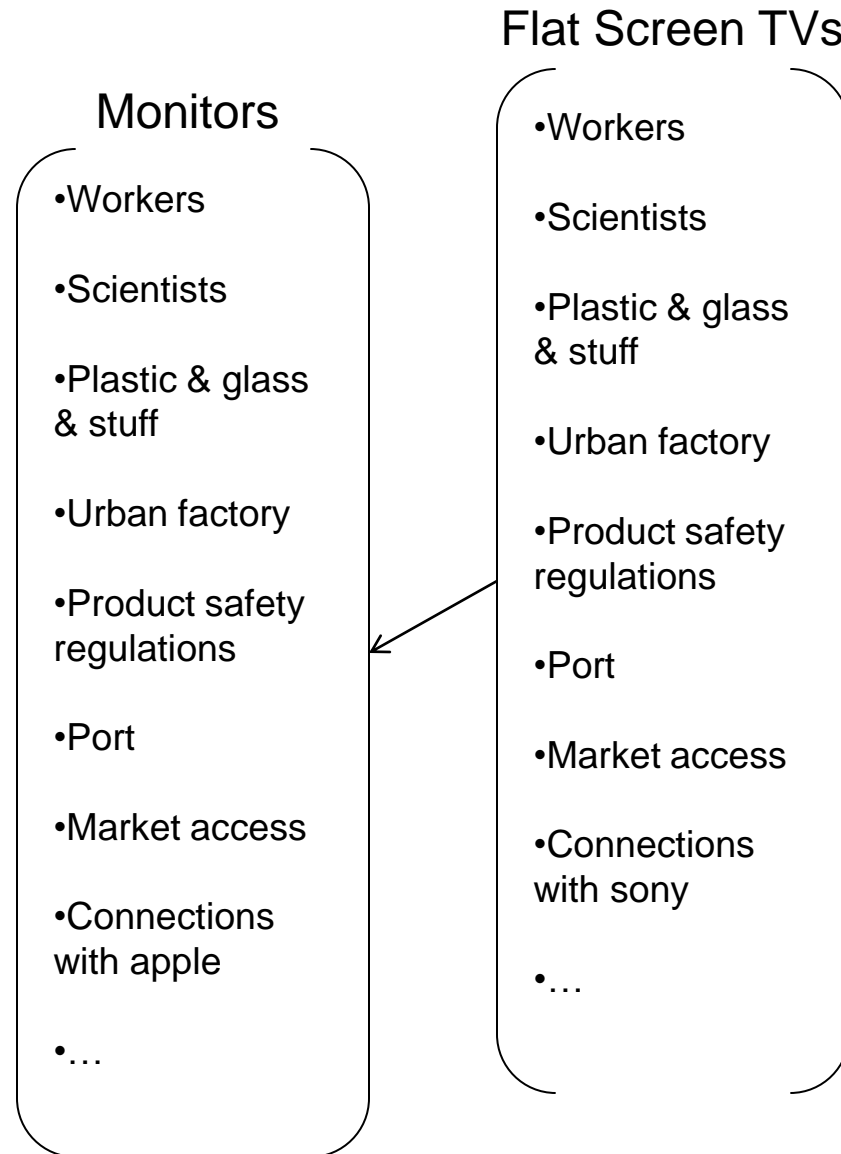
Asparagus

- Workers
- Agronomists
- Rural land titles
- Rural roads
- Phytosanitary standards
- Port
- Market access
- Connections with green giant
- ...

- Workers
- Scientists
- Plastic & glass & stuff
- Urban factory
- Product safety regulations
- Port
- Market access
- Connections with apple
- ...



- Since new products must use that which exists, future structural transformation depends on what is 'close' to existing production
- This creates very strong path dependence



Findings

- Initial location in the product space affects your future opportunities of structural transformation
- Many countries have few nearby activities
- Challenge of structural transformation:
 - How to make a larger set of capabilities appear at the same time?
 - Private inputs have a price, can be imported
 - Public capabilities have no price
 - This means a large degree of coordination, and requires information, resources & incentives

Asparagus

- Workers
- Agronomists
- Rural land titles
- Rural roads
- Phytosanitary standards
- Port
- Market access
- Connections with green giant
- ...

Zones as a solution?

- One way to accomplish this coordination is to internalize it in a zone:
 - A single entity that makes sure that all inputs are available & coordinates investments
- Why is this easier for a zone?

Zones as a solution - Coordination

1. Simplifies the coordination problem

- It is usually impossible for the government to suddenly make all those inputs available everywhere at the same time
 - But it is more feasible to make all of them available somewhere at the same time
 - Zone management scans the opportunities, meets with potential investors, has to deliver the right mix of inputs to get them in
 - Instead of all activities x all inputs trying to meet the president, the complexity is reduced to a particular area and set of activities
 - As the space starts to get filled up with specific firms, new unmet needs will become more visible
-

Zones as a solution – Resources & Incentives

2. Can generate resources

- ❑ While many of these capabilities are under the purview of the state, they aren't truly 'public goods'
- ❑ They are excludable (and potentially rivalrous if there is congestion)
- ❑ They are more like club goods – best provided by a natural monopoly
- ❑ Zone has a spatial monopoly: can charge those who are in for these inputs, and keep others out

3. Has incentives to respond to needs

- ❑ The better the quality of the services, the higher the rent that can be charged
 - ❑ Incentive to respond is to get more / higher rents
 - ❑ Density of these zones can be quite high (e.g. China, the DR) – zones start to compete on attracting new investors
-

Dual roles of many zones

- So far, this has all been motivated by the need to increase productivity by offering a more complete set of inputs at some point of space and time

 - This is often mixed with other function of zones
 - An area with a different set of rules to bypass problems in the domestic market
 - E.g. to correct anti-export bias created by tariffs
 - E.g. to reduce regulations in line with other investment destinations
-

From here to EPZs

- There may be reasons to give zones special rules
 - E.g. to get first entrants to achieve necessary minimum scale to coordinate, or to compensate for coordination costs, it may be useful to provide a temporary tax incentive
 - E.g. if there is an anti-export bias, but tariffs can't be changed because it is one of the few ways for the government to raise resources, an EPZ may make sense

 - But it is useful to separate these two functions of zones: special rules as a shortcut, and the 'business park' function

 - It is informative to see what happens when these two functions are separated
-

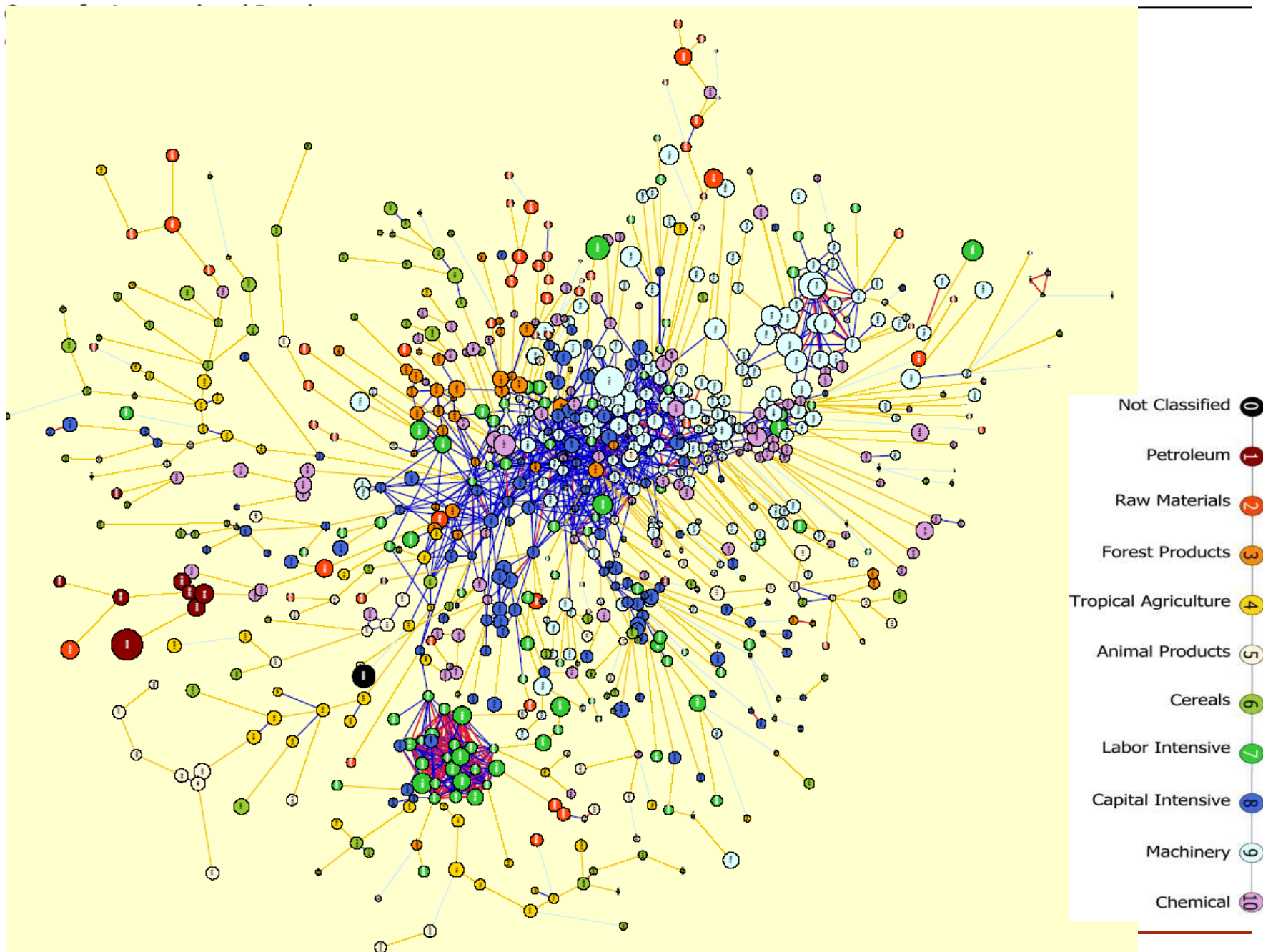
E.g. ZonAmerica

- Originally set up to bypass tariffs
 - Double-dip on Mercosur (import without tariffs as an SEZ but sell to Mercosur without tariffs as a resident)
 - But the Brazilians forbade it (it is unfair, unless you are in Manaus)
 - So they had to reinvent themselves – not a tariff corrector anymore
 - What did they do?
 - Search the product space for potential activities, determine what inputs were needed, and provided them
 - Whom did they attract?
 - Back offices of global investment banks, call centers, software developers
 - Some key inputs:
 - Data center, full fiber optic network plus backup, training & recruitment, security, recreation facilities, satellite communication (negotiate an exception from the government monopoly in telecom)
 - Now is 4% of Uruguay GDP, 80% of software- now Latin America's biggest exporter
 - Another example: Coega in the Eastern Cape
 - Conceived for aluminum smelter, now one of the most diverse auto component clusters in the world
-

Conclusion

- The ‘business park’ function can be a key tool to promote structural transformation:
 - Make the problem more manageable: Not making the inputs available everywhere at the same time
 - The zone managers can observe the nature of agglomeration externalities & co-ordinate: Solves the *information* problem
 - Solves the *resources & incentives* problems as well: Club goods through spatial monopoly
 - Useful to separate this function from the special rules
 - Much of the benefit might come from this coordinating role
 - Has implications for how the zones are set-up: flexibility & adaptation
-

Appendix



Nodes sized according to World Exports, darker links are stronger (red is strongest)

Methodology

- Use disaggregated export data (Feenstra)

- Proximity of good i to j :

$$\varphi_{i,j,t} = \min \{ P(x_{i,t} | x_{j,t}), P(x_{j,t} | x_{i,t}) \}$$

- Where for any country c

$$x_{i,c,t} = \begin{cases} 1 & \text{if } RCA_{i,c,t} > 1 \\ 0 & \text{otherwise} \end{cases}$$

- Note: as robustness tests we allow for proximity to be asymmetric, and for different definitions of x . All results continue to hold.
-

Methodology

■ Eg:

Proximity of Cotton Undergarments to:

Synthetic undergarments	0.78
Overcoats	0.51
Woven fabrics	0.12
Centrifuges	0.02

Proximity of CPUs to:

Digital central storage units	0.56
Epoxide resins	0.50
Optical glass	0.32
Unmilled rye	0.00
